

CA20N
EAB
-0 53

ENVIRONMENTAL ASSESSMENT BOARD



ONTARIO HYDRO DEMAND/SUPPLY PLAN HEARINGS

VOLUME: 169

DATE: Wednesday, October 28, 1992


BEFORE:

HON. MR. JUSTICE E. SAUNDERS	Chairman
DR. G. CONNELL	Member
MS. G. PATTERSON	Member

FARR
ASSOCIATES
&
REPORTING INC.

(416) 482-3277

2200 Yonge St. Suite 709 Toronto, Canada M4P 1E4



Digitized by the Internet Archive
in 2022 with funding from
University of Toronto

<https://archive.org/details/31761114681497>

ENVIRONMENTAL ASSESSMENT BOARD
ONTARIO HYDRO DEMAND/SUPPLY PLAN HEARING

IN THE MATTER OF the Environmental Assessment Act,
R.S.O. 1980, c. 140, as amended, and Regulations
thereunder;

AND IN THE MATTER OF an undertaking by Ontario Hydro
consisting of a program in respect of activities
associated with meeting future electricity
requirements in Ontario.

Held on the 5th Floor, 2200
Yonge Street, Toronto, Ontario,
Wednesday, the 28th day of October,
1992, commencing at 9:00 a.m.

VOLUME 169

B E F O R E :

THE HON. MR. JUSTICE E. SAUNDERS	Chairman
DR. G. CONNELL	Member
MS. G. PATTERSON	Member

S T A F F :

MR. M. HARPUR	Board Counsel
MR. R. NUNN	Counsel/Manager, Information Systems
MS. C. MARTIN	Administrative Coordinator
MS. G. MORRISON	Executive Coordinator

A P P E A R A N C E S

B. CAMPBELL	)	ONTARIO HYDRO
L. FORMUSA)	
B. HARVIE)	
J.F. HOWARD, Q.C.)	
J. LANE)	
G. A. KARISH)	
J.C. SHEPHERD	)	IPPSO
I. MONDROW)	
J. PASSMORE)	
R. WATSON	)	MUNICIPAL ELECTRIC
A. MARK	)	ASSOCIATION
S. COUBAN	)	PROVINCIAL GOVERNMENT
P. MORAN	)	AGENCIES
J. MacDONALD)	
C. MARLATT	)	NORTH SHORE TRIBAL COUNCIL,
D. ESTRIN	)	UNITED CHIEFS AND COUNCILS
H. DAHME	)	OF MANITOULIN, UNION OF
		ONTARIO INDIANS
D. POCH	)	COALITION OF ENVIRONMENTAL
D. STARKMAN	)	GROUPS
D. ARGUE)	
T. ROCKINGHAM		MINISTRY OF ENERGY
B. KELSEY	)	NORTHWATCH
L. GREENSPOON)	
P. MCKAY)	
J.M. RODGER		AMPCO
M. MATTSON	)	ENERGY PROBE
T. McCLENAGHAN)	
A. WAFFLE		ENVIRONMENT CANADA
M. CAMPBELL	)	PUBLIC HEALTH COALITION
		(OPHA, IICPA)
G. GRENVILLE-WOOD		SESCI

A P P E A R A N C E S
(Cont'd)

D. ROGERS		ONGA
H. POCH	)	CITY OF TORONTO
J. PARKINSON)	
R. POWER		CITY OF TORONTO, SOUTH BRUCE ECONOMIC CORP.
S. THOMPSON		ONTARIO FEDERATION OF AGRICULTURE
B. BODNER		CONSUMERS GAS
J. MONGER	)	CAC (ONTARIO)
K. ROSENBERG)	
C. GATES)	
W. TRIVETT		RON HUNTER
M. KLIPPENSTEIN		POLLUTION PROBE
N. KLEER	)	NAN/TREATY #3/TEME-AUGAMA
J. OLTHUIS	)	ANISHNABAI AND MOOSE RIVER/
J. CASTRILLI	)	JAMES BAY COALITION
T. HILL		TOWN OF NEWCASTLE
M. OMATSU	)	OMAA
B. ALLISON)	
C. REID)	
E. LOCKERBY		AECL
C. SPOEL	)	CANADIAN VOICE OF WOMEN
U. FRANKLIN	)	FOR PEACE
B. CARR)	
F. MACKESY		ON HER OWN BEHALF
D. HUNTER	)	DOFASCO
M. BADER)	
B. TAYLOR	)	MOOSONEE DEVELOPMENT AREA
D. HORNER	)	BOARD AND CHAMBER OF
H. WATSON	)	COMMERCE

A P P E A R A N C E S
(Cont'd)

T. HEINTZMAN	)	ATOMIC ENERGY OF CANADA
D. HAMER)	
C. FINDLAY)	
P.A. NYKANEN	)	CANADIAN MANUFACTURERS ASSOCIATION - ONTARIO
G. MITCHELL		SOCIETY OF AECL PROFESSIONAL EMPLOYEES
S. GOUDGE		CUPE
D. COLBORNE		NIPIGON ABORIGINAL PEOPLES' ALLIANCE
R. CUYLER		ON HIS OWN BEHALF
L. BULLOCK	)	CANADIAN NUCLEAR ASSOCIATION
L. CHAN)	
R. MATSUI)	
M. ANSHAN		CAESCO

I N D E X o f P R O C E E D I N G S

	<u>Page No.</u>
<u>GEORGE WILLIAM CLAYTON; Sworn.</u>	29745
Direct Examination by Mr. Greenspoon	29747
Cross-Examination by Mr. Rodger	29764
Cross-Examination by Mr. R. Watson	29776
Cross-Examination by Mr. B. Campbell	29791
Examination by Dr. Connell	29807
Re-Direct Examination by Mr. Greenspoon	29812

L I S T o f E X H I B I T S

<u>No.</u>	<u>Description</u>	<u>Page No.</u>
784	Document entitled "The Ontario Hydro 1991 Environmental Performance Report".	29743
785	Excerpt from Globe and Mail entitled "Ontario Hydro Chairman Denounces Megaprojects."	29750
786	Policy Statement from province of British Columbia entitled "Independent Power Supply to B.C. Hydro".	29747
787	Excerpt from environmental assessment entitled "The Transmission Reinforcement in Northeastern Ontario".	29758
781.6	Interrogatory No. B6.9.1.	29777
781.7	Interrogatory No. B6.9.3.	29779
781.8	Interrogatory No. B6.9.8.	29790
781.9	Interrogatory No. B6.24.6.	29805

L I S T o f U N D E R T A K I N G S

<u>No.</u>	<u>Description</u>	<u>Page No.</u>
783.3	Northwatch undertakes to provide a gas line transmission map of Ontario.	29791

TIME NOTATIONS

	<u>Page No.</u>
9:02 a.m. -----	29743
9:10 a.m. -----	29750
9:25 a.m. -----	29757
9:40 a.m. -----	29765
9:55 a.m. -----	29777
10:15 a.m. -----	29790
10:35 a.m. -----	29803
Adjourned 10:55 a.m. -----	29815

1 ---Upon commencing at 9:02 a.m.

2 THE REGISTRAR: Please come to order.

3 This hearing is now in session.

4 THE CHAIRMAN: I want to put on record an
5 exhibit filed by Ontario Hydro numbered 784 and
6 entitled "The Ontario Hydro 1991 Environmental
7 Performance Report".

8 ---EXHIBIT NO. 784: Document entitled "The Ontario
9 Hydro 1991 Environmental Performance
 Report".

10 THE CHAIRMAN: Mr. Greenspoon.

11 MR. GREENSPOON: Thank you, Mr. Chairman.

12 My friend Mr. Starkman wishes to --

13 MR. STARKMAN: Sorry, Mr. Chairman. Just
14 with respect to that exhibit that you have marked,
15 further to our discussions earlier about Mr. Eliesen's
16 speech, I was wondering if we could set aside some time
17 at the appropriate moment to talk about whether that
18 exhibit has any evidentiary value or how it would be
19 treated --

20 THE CHAIRMAN: Well, excuse me, Mr.
21 Starkman, that exhibit is one of a series of exhibits
22 that have been, of environmental reports that have been
23 put in. I suppose the parties will want to have a look
24 at it to see if there are any significant changes from
25 the earlier report. If there are, then we may have to

1 deal with that.

2 MR. STARKMAN: Mr. Chairman, Hydro was
3 kind enough to send us a copy and we received it
4 yesterday. We took a look at it. In our view there
5 are changes and there are matters of some significance.
6 That's why I'm raising the general issue of whether
7 this requires a witness to speak to it, what value it
8 has, how it will be treated by the panel, and so forth.
9 We do recognize this is part of an ongoing matter but
10 we thought we would indicate now that we do need and
11 would like some clarification as to how these matters
12 will be treated or how they ought to be treated.

13 THE CHAIRMAN: Certainly if there is
14 anything of any significance I would think that there
15 would have to be someone to come and answer questions
16 about it, if they were significant to the issues at
17 this hearing. I would think that would follow. How
18 that is going to be organized is another matter.

19 Mr. Campbell, do you have any comments?

20 MR. B. CAMPBELL: No, Mr. Chairman. I
21 have not had the opportunity to review the document in
22 any detail. This is simply a continuance in a series
23 of documents as you point out and we have given an
24 undertaking, I believe, on this kind of document that
25 we will provide, automatically, updates or the next

1 versions as they come along. So we are providing it
2 simply to a long standing undertaking to produce these
3 kinds of documents.

4 THE CHAIRMAN: Right.

5 Is that sufficient, Mr. Starkman, for the
6 moment?

7 MR. STARKMAN: I guess it's sufficient
8 for the moment; I'm not sure where it's left. Is it
9 our obligation to raise questions of whether there are
10 matters of relevance and significance or are we going
11 to proceed on the basis that there are no matters of
12 relevance and significance and therefore it's of no
13 evidentiary value unless --

14 THE CHAIRMAN: It certainly is of
15 evidentiary value. It has the same weight as the other
16 environmental reports that have been put in before.
17 They are parts of the reports of the proponent like
18 Exhibit 87, like a whole group of them, that if there
19 are matters which need some cross-examination, then we
20 will have to arrange for that.

21 MR. STARKMAN: Thank you.

22 THE REGISTRAR: May I swear the witness.

23 THE CHAIRMAN: Yes, please.

24 GEORGE WILLIAM CLAYTON; Sworn.

25 MR. GREENSPOON: Mr. Chairman, there are

1 two exhibits which I wish to file. One is entitled in
2 our document precis: "Ontario Hydro Chairman Denounces
3 Megaprojects." It's an excerpt from the Globe and
4 Mail.

5 THE CHAIRMAN: Well, excuse me now, just
6 hold it minute. What are you filing that for?

7 MR. GREENSPOON: I'm filing that because
8 my witness is going to comment on the position taken by
9 the chairman.

10 THE CHAIRMAN: Well, it's only -- yes,
11 it's only to help this witness to give his testimony
12 that such a document would be entertained.

13 MR. GREENSPOON: That's right. That's
14 exactly why I want to file it.

15 THE CHAIRMAN: To repeat, I hope for the
16 last time, it is not in itself evidence of any kind.

17 MR. GREENSPOON: Yes, I'm a little bit
18 sorry about the chain of events that now I'm filing
19 this after all this big discussion that we had. I had
20 planned on using the article to assist my witness
21 because my witness is from out of province.

22 And the second article --

23 THE REGISTRAR: That would be 785, the
24 first one, Mr. Chairman.

25

1 ---EXHIBIT NO. 785: Excerpt from Globe and Mail
2 entitled "Ontario Hydro Chairman
3 Denounces Megaprojects."

4 THE CHAIRMAN: Thank you.

5 MR. GREENSPOON: The second exhibit is
6 entitled "Independent Power Supply to B.C. Hydro" and
7 it's a policy statement from the province of British
8 Columbia.

9 ---EXHIBIT NO. 786: Policy Statement from province of
10 British Columbia entitled "Independent
11 Power Supply to B.C. Hydro".

12 MR. GREENSPOON: I might say that the
13 policy statement from the British Columbia government
14 is only filed because it's in one of the responses to
15 one of the interrogatories and I'm not going to refer
16 to it. I only wish it to be there in case one of my
17 friends has a question on that issue.

18 I just propose to briefly qualify my
19 witness as an expert, Mr. Chairman.

20 DIRECT EXAMINATION BY MR. GREENSPOON:

21 Q. Mr. Clayton, you graduated from the
22 University of British Columbia in 1952?

23 A. That is correct.

24 Q. And you are an electrical engineer?

25 A. That is correct.

 Q. I only wish to highlight three

1 matters on your CV. In the mid 1970s you were a member
2 of the Ontario Energy Board?

3 A. That is correct.

4 Q. And how long did you serve in that
5 capacity?

6 A. I served as a full-time member for
7 approximately 6 months and thereafter as a part-time
8 member for a term, Order-in-Council term, of
9 approximately two years.

10 Q. And there is -- I won't go through
11 all of the items on your CV but significantly in 1990,
12 September of 1990, I understand that you testified or
13 you were an expert witness on behalf of the Manitoba
14 Public Utilities Board?

15 A. That is correct.

16 Q. That was a hearing to talk about
17 Manitoba Hydro's capital program?

18 A. Yes, sir.

19 Q. And at present, could you tell us
20 what you are doing.

21 A. At the present time I am retained by
22 West Coast Power Incorporated, which is a subsidiary.
23 It is the power generation development subsidiary of
24 West Coast Energy Inc. of Vancouver.

25 Q. I understand that the nature of your
Farr & Associates Reporting, Inc.

1 work is in the area of cogeneration.

2 A. Principally cogeneration but not
3 exclusively. It involves the seeking out and
4 development of independent power projects both in
5 Canada and in the United States.

6 Q. And would it be fair to say that your
7 area of expertise could be characterized as a system
8 planner?

9 A. During the first 20 years of my
10 career, most of my career at that time was dedicated to
11 system planning.

12 Q. Okay. Well, subject to any questions
13 that my friends might have about his expert
14 qualifications, I can move on. (No response)

15 Now, what I propose to do, Mr. Chairman,
16 is briefly go through Mr. Clayton's report which has
17 been filed and --

18 THE CHAIRMAN: I think you can take it --
19 I mean I'm not trying to inhibit you in any way but you
20 can take it that we have read the report.

21 MR. GREENSPOON: Yes, fine. Then I
22 imagine that I won't be very long.

23 Q. Mr. Clayton, I wonder if you could
24 just briefly describe in an outline form the nature of
25 your understanding of the early development of Ontario

1 Hydro's system.

2 A. I noted in my evidence, it was an
3 observation as much as anything, that Ontario had, the
4 Ontario system had grown somewhat differently from
5 large hydraulic systems in other provinces of Canada.
6 And this came about principally because of the
7 geographic distribution of resources in Ontario.

8 You had the Niagara River, the Ottawa
9 River, the St. Lawrence River, all of which were
10 relatively or reasonably close to major load centres in
11 southern Ontario and were logically enough the first
12 resources to be developed to serve the growing need for
13 electricity in Ontario.

14 [9:10: a.m.]

15 As those resources were developed, as the
16 hydraulic resources were developed, also were developed
17 the early thermal generation plants on the Ontario
18 Hydro system, in part to further firm up the Hydro
19 plants, and in part to meet increasing load growth.
20 And then, of course, as is typical in most power
21 systems, there was a stretch out, if you want to use
22 that word, to the more remote projects in Northern
23 Ontario, develop those and to interconnect them to the
24 principal systems to the south by means of reasonably
25 high voltage radial transmission lines.

1 That is a little bit different than what
2 happens in other provinces in Canada. Quebec, for
3 example, did have some local hydro, the Beauharnois
4 plant and others, but it was very early in its
5 development that it had to reach out into the northern
6 country to develop its hydroelectric potential and to
7 connect those stations to the load centres of Quebec
8 City and Montreal by means of high voltage transmission
9 line. The same thing happened in British Columbia and
10 to a large extent in Manitoba.

11 Q. So then your paper takes us to the
12 point where we have in Northern Ontario a potential
13 supply of a smaller nature, and you set out in your
14 paper four advantages for that. I wonder if you could
15 just briefly explain the advantage of what you call
16 regional resources. The first advantage I think you
17 set out is improved economics and efficiency.

18 A. Could I preface, make one opening
19 remark before getting into that?

20 Q. Certainly.

21 A. The principal thrust or position
22 taken by the paper is certificate a relatively time
23 honoured transmission system planning credo that you
24 first develop to the extent possible those resources
25 which are closest to your load centre. It's a rather

1 self-evident truth. In so doing you minimize the
2 capital cost of interconnecting transmission lines and
3 the power and energy losses that inevitably will occur
4 when you attempt to transmit power, electricity over
5 long distances by means of high voltage lines.

6 So the thrust of the paper was not to
7 lose sight of the fact that there may be regional
8 generation, most certainly will be regional generation
9 that could be developed to advantage, to minimize the
10 use of long distance high voltage transmission lines.

11 Now, with that precursor, I noted that
12 there were several advantages associated with what I
13 called regional generation. One of these relates to
14 the possible use and development of cogeneration, which
15 is a technology today that has gained considerable
16 attention in all parts of North America, the reasons
17 being that cogeneration offers a very efficient energy
18 conversion and utilization technology. It has the
19 further advantage of being situated in industrial
20 facilities usually because cogeneration implies the
21 joint production of both electricity and usually heat
22 in the form of steam. And if that steam can be used in
23 an industrial process, it frequently results in
24 improved economics for the steam host, the plant that
25 is serving as the location or host, if you will, for

1 the cogeneration facility. And improved economics of
2 production translate into a more competitive economic
3 position, possibly increased job security, things of
4 that nature, and that was the point that I was
5 attempting to make under item A of my evidence.

6 Q. The next two advantages that you cite
7 are the reduced losses and the reliability. I take it
8 that that is the point that you prefaced your remarks
9 about?

10 A. Yes, but perhaps a little further
11 elaboration on that.

12 Q. Certainly.

13 A. I think again it's rather
14 self-evident that if you can minimize transmission then
15 you can minimize power losses, and I don't mean by that
16 statement to say there should be no transmission. It's
17 always a matter of balance between whether you install
18 generation to service an area or whether you install
19 transmission to service an area. My point is that both
20 should be considered.

21 On the reliability issue transmission
22 lines are not without outages. They are subject to the
23 vagaries of weather because they cover such great -- or
24 may cover great lengths. It's not uncommon for
25 transmission line to be taken out-of-service for some

1 number of hours, if not days, because of ice storms,
2 wind storms, or the like.

3 The location in a region of local
4 generation, in my view anyway, goes a long way to
5 enhancing the reliability of supply to that region
6 through the simple expedient that if the region becomes
7 isolated from its source of supply because of
8 transmission line failure, it still has a nucleus of
9 generation which will allow it to serve its loads.

10 Q. So I think just rather than citing
11 the speech of Mr. Eliesen in particular, somewhere in
12 the speech apparently, and I am only asking you this to
13 get your opinion on that matter, and that is somewhere
14 in the speech he says that he doesn't think we will see
15 a Darlington-type project in the future. How does that
16 relate to your view of the role of small scale
17 generation?

18 A. Well, I guess it's not really my
19 view, Mr. Greenspoon. What I have seen in the industry
20 is a definite trend away from what Mr. Eliesen
21 characterized as megaprojects, and there are many
22 reasons why this is happening. All I am doing in my
23 small effort here is to point out this trend. One can
24 look to other parts of Canada and the United States,
25 and in many, many instances, not universally so, but in

1 a great many instances the tendency now is to emphasize
2 demand side management, to emphasize small renewable
3 resources, and by renewable resources one looks to
4 Hydro facilities, amongst others, and cogeneration.

5 I keep coming back to cogeneration not
6 because I am personally enamoured by it all, although I
7 think it's a fine technology, but simply because it's
8 one that has been so widely recognized throughout North
9 America and cannot be ignored.

10 Q. Okay. Is there anything that you
11 wish to add to what is in your paper about
12 environmental impacts or is that -- that is the
13 advantage of small local generation to the
14 environmental impact issue?

15 A. Well, this again is a very, I
16 suppose, argumentative point and it depends what one's
17 perspective may be. But a transmission line does
18 cover -- it is a long linear route, there can be no
19 argument about that. A generation project is a more
20 area specific type of venture. It then becomes
21 problematic as to which has the more or less
22 environmental impact.

23 My personal view is that local
24 generation, again of a cogeneration variety which is
25 already sited within an industrial facility which is

1 probably zoned industrial to start with, provides less
2 environmental impact than does a transmission line. If
3 it's a gas-fired facility, then there is the
4 opportunity to the put on the best available control
5 technology to minimize emissions, and by and large you
6 stand the opportunity of coming up with a fairly good
7 project that offers minimum impact to the environment.

8 Q. There was just one other issue that I
9 wanted to cover with you, Mr. Clayton, and that is the
10 issue of integration of a system. Not to gloss over it
11 minimally, but you come from an era when transmission
12 and large generation was in vogue. Would you agree
13 with that, that in the past that was...

14 A. I almost go back to Edison's first
15 power plant, Mr. Greenspoon. Yes, that's correct
16 [Laughter.]

17 Q. I didn't mean it in that way.
18 [Laughter.]

19 So I guess what I am coming to, we have
20 all heard many times at this hearing that there is a
21 west system which Ontario Hydro describes as a west
22 system, and an east system, both being north of the
23 TransCanada Highway, and we have heard that there are
24 some weaknesses in the interconnect between the east
25 and west system.

1 [9:25 a.m.]

2 I would like, Mr. Chairman, to refer to
3 Exhibit 173 for this discussion. It's a map.

4 THE CHAIRMAN: Do we have this?

5 MR. GREENSPOON: I don't think you have
6 this one.

7 THE CHAIRMAN: Oh, this is another one.

8 Should this be marked? What is this, Mr.
9 Greenspoon?

10 MR. GREENSPOON: This is an excerpt and I
11 thought that what I would do is just file one of the
12 original. This is called "The Transmission
13 Reinforcement in Northeastern Ontario" and it's an
14 environmental assessment that has been filed by Ontario
15 Hydro. It's another matter.

16 THE CHAIRMAN: Is it already an exhibit
17 or is it...?

18 MR. GREENSPOON: I don't think so.

19 THE CHAIRMAN: Then we perhaps should
20 mark it.

21 MR. GREENSPOON: The whole document?

22 THE CHAIRMAN: No, the extract.

23 MR. GREENSPOON: The extract.

24 THE CHAIRMAN: You are using it for the
25 same purpose as you are using the other; that is, to

1 assist Mr. Clayton in giving his evidence.

2 MR. GREENSPOON: Yes.

3 THE REGISTRAR: Could I have copies
4 please, Mr. Greenspoon.

5 THE CHAIRMAN: What is the number?

6 THE REGISTRAR: That will be 787, Mr.
7 Chairman.

8 ---EXHIBIT NO. 787: Excerpt from environmental
9 assessment entitled "The Transmission
 Reinforcement in Northeastern Ontario".

10 THE CHAIRMAN: 787. Which are we looking
11 at? The map or the excerpt?

12 MR. GREENSPOON: Well, we are going to
13 look at both.

14 Now, first we can deal with the extract.
15 The -- do we have a hydraulic problem?

16 THE CHAIRMAN: We have a hydraulic
17 problem but don't worry about it. [Laughter.]

18 MR. GREENSPOON: If we can turn to the
19 purpose of the undertaking. Now basically, Mr.
20 Clayton, you have read this extract. This is an
21 undertaking to upgrade the system in the east which is
22 the area around Timmins, North Bay, Sudbury.

23 I just want you to look at the general
24 purpose of the undertaking on line 6. Maybe I should
25 wait until the hydraulic problem is cleared up.

1 While you are looking at the map, Mr.
2 Chairman, the part I'm going to be referring to is the
3 run from Long Lac to Hearst. You can identify that
4 because you will see that there isn't a green line
5 running; the green line stops at Hearst and also stops
6 at Long Lac.

7 Q. Now, Mr. Clayton, maybe just to go to
8 that while the Board is looking at the map. Would it
9 be fair to say that there is a 230 kilovolt line that
10 runs through Sault Ste. Marie to Wawa out to the
11 northwest of Ontario. That green line is a 230
12 kilovolt line.

13 A. I think it's the blue line that is
14 230 kV, Mr. Greenspoon, and the green one is 115 kV.

15 Q. Okay.

16 A. But in answer to your question, the
17 line that runs from -- well, the line that runs through
18 Wawa is a 230 kV line if the map is accurate.

19 Q. That would be called an interconnect
20 between the east and the west system. Would that would
21 good terminology?

22 A. I think that would be fair
23 terminology, yes.

24 Q. Would it be fair to say that we don't
25 have such a line going from Hearst to Long Lac,

1 although we do have a transmission line of some sort.

2 A. Again, the map suggests to me that
3 there is a 230 kV line as far as Hearst coming from the
4 east and there appears to be a 230 kV line to Long Lac
5 coming from the west.

6 Now, I must confess those colours blue
7 and green look to my eyes much the same and I'm not
8 sure if I'm interpreting it correctly. But I think
9 it's blue. Mr. Campbell is the transmission expert.
10 He can perhaps clarify the issue for us.

11 MR. B. CAMPBELL: I believe they are 115s
12 in both directions.

13 MR. GREENSPOON: In any case, would it be
14 fair to say that if you were going to try and better
15 interconnect the east and west, given that you have a
16 good -- there doesn't seem to be any debate that we
17 have a 230 kV line going through Wawa, wouldn't it make
18 more sense or wouldn't it make good sense - I shouldn't
19 use more sense, that phrase - wouldn't it make good
20 sense to look at the possibility of interconnecting
21 from Hearst to Long Lac?

22 A. I would have thought so. I might
23 also add that I believe there are two 230 kV lines from
24 Wawa through to Marathon.

25 Q. Just to look now for a moment at the

1 undertaking, that is the undertaking that we filed for
2 the northeastern upgrade, if you could just look at
3 line 33 under paragraph 2.1, would it be fair to say
4 that Ontario Hydro is proposing in this undertaking
5 that a 230 kV upgrade is going to suffice for
6 northeastern Ontario's needs? Is that what they appear
7 to be saying there?

8 A. Well, in fact they are saying that
9 Ontario Hydro's ability to respond to potential new
10 demands will be considerably enhanced, so one has to
11 interpret "considerably enhanced", but I would assume
12 from that that their position is - and one cannot argue
13 the point - that the ability to serve northern Ontario
14 will be enhanced by the construction of additional
15 transmission line.

16 Q. Now just to tie this together, what
17 is the relationship between -- why is it that we want
18 an interconnect of some sort between northeast and
19 northwest? What is the importance of that?

20 A. Well, if we look only at --

21 MR. B. CAMPBELL: Just a minute, sorry.
22 are we talking about -- I just would like to be sure I
23 understand the question and I may have some concerns
24 about the relevance.

25 When you say northeast and northwest, are

1 you talking about the regions on this map or are you
2 talking about the west system and the east system?

3 MR. GREENSPOON: I'm sorry. I should say
4 the east.

5 Q. What is the importance of the
6 interconnect between the east and west systems?

7 Thank you, Mr. Campbell.

8 A. Well, I would suggest, Mr.
9 Greenspoon, that it would serve a multiplicity of
10 purposes; one of which would be to allow the bilateral
11 flow of power between those two systems. Another of
12 which could be to enhance reliability of the west
13 system in particular as it's the smaller system. There
14 may be other benefits associated with the
15 interconnection that could be claimed. There maybe
16 diversity benefits that could be claimed. There may be
17 some economy energy transactions that are possible.

18 Q. Now, supposing hypothetically that
19 the Manitoba Purchase is deferred or perhaps never
20 happens, would it make good system planning sense to
21 run a 500 kilovolt line from the middle of the west
22 system to the middle of the east system to serve that
23 purpose or would it make more sense to do, as you
24 suggested in your evidence, to look at an
25 interconnection between Long Lac and Hearst as a first

1 step?

2 A. I'm sorry, Mr. Greenspoon, that
3 particular point was not made in my written evidence of
4 the interconnection between those two points.

5 Q. No, I meant in our discussion today,
6 you indicated that you would think you would look at a
7 connection between Long Lac and Hearst.

8 A. Well, I think to put the thing in its
9 proper perspective we have to view the west system as a
10 totality. And my position is that one must consider
11 not only transmission but in particular the development
12 of local regional generation. If you do that and if
13 there are opportunities, if there are resources, if
14 there are cogeneration prospects in the west system
15 that can be developed, then these should be given
16 careful and close attention.

17 And to the extent that it is economic to
18 develop such plant, then it may be unnecessary to
19 resort to extra high voltage transmission line
20 technology. It may then be that you can overcome the
21 technical problems, whatever they may be, which arise
22 between the east and west systems because of the
23 separation distance by reinforcing existing 230 kV,
24 circuitry or by constructing further interconnects at
25 the lower voltage level and this leads us to the Long

1 Lac/Hearst concept as a possibility.

2 Now I have not had the opportunity to
3 conduct any of the necessary load flows and other
4 studies that would be necessary to prove that point,
5 but one sees something on a map and thoughts come to
6 mind. And that's what I'm attempting to do, is to
7 point out these prospects.

8 MR. GREENSPOON: Okay.

9 Those are all the questions I have.

10 THE CHAIRMAN: Mr. Rodger.

11 MR. RODGER: Thank you, Mr. Chairman.

12 CROSS-EXAMINATION BY MR. RODGER:

13 Q. I just have a few matters, Mr.
14 Clayton, I would like to go through with you. I read
15 your Exhibit 741 and --

16 A. Excuse me, sir. I don't have an
17 exhibit list. Which one was that? Can you identify
18 it?

19 Q. That's your paper.

20 A. My paper?

21 Q. Your paper: Comments regarding the
22 existing transmission system of Ontario Hydro.

23 A. Yes.

24 Q. And after reading it, would it be
25 fair if I characterized your paper as representing

1 Northwatch's philosophy on utility planning for
2 Ontario?

3 A. I don't believe that's correct.

4 Q. Would it then be fairer to say that
5 it represents the hypothesis for Northwatch's specific
6 plan that will be developed in subsequent panels?

7 A. I can't say yes or no to that. It
8 represents my professional thoughts about system
9 planning and how it might be applied to the western
10 system.

11 Q. Perhaps that's the distinction I
12 want. I want to get is it that or is it more of a
13 specific plan that we are going to see being developed
14 in later panels. So it's really your thoughts on the
15 matter on really your thoughts on general planning
16 principles?

17 A. I think that adequately characterizes
18 it, yes. Now certainly I believe there are additional
19 panels that would be dealing with non-utility
20 generation; and in all likelihood some of the concepts
21 that I have referred to in respect of cogeneration,
22 things of that nature, may very well be raised before
23 such panels.

24 [9:40 a.m.]

25 Q. I wonder if you could turn, sir, to

1 page 4 of your exhibit.

2 Sir, Mr. Greenspoon wanted me to advise
3 you that my client is the Association of Major Power
4 Consumers in Ontario. He thought that might help you.

5 A. Thank you, it does. It's always nice
6 to know who's shooting at you. [Laughter.]

7 Q. Now on page 4 I'm looking at the
8 paragraph entitled Potential Sources of Supply, and I
9 would just like to read parts of this paragraph. It
10 states:

11 The research of the Northwatch
12 Intervention Coalition and other
13 organizations indicates that a
14 substantial amount of the future demand
15 for electricity in the north could be
16 satisfied by the development of
17 cogeneration within existing industrial
18 facilities, and to a lesser extent, small
19 hydro and biomass. The potential for
20 cogeneration of existing industrial
21 facilities appears to be extensive,
22 something in the order of 1,000
23 megawatts.

24 Now sir, I don't know whether you recall,
25 but in one of AMPCO's interrogatories we requested that

1 research of Northwatch that you have indicated in this
2 passage, and your response was that we should request
3 that research directly from Northwatch and that you
4 really didn't have detailed knowledge of the full
5 extent of their data, and you were advised by
6 Northwatch that this was the potential for cogen. Is
7 that essentially correct?

8 MR. GREENSPOON: Well, Mr. Chairman, this
9 is clearly a matter that is for Panel 3. When Ontario
10 Hydro presented their evidence in Panel 1 on the
11 forecast, included in that forecast were numbers for
12 efficiency, demand management, EEI, NUG potential, and
13 it became clear practice at these hearings that those
14 matters would be dealt with when that evidence, when
15 the experts to deal with that evidence were called.

16 We have a study that we will be filing in
17 Panel 3 that Mr. Rodger will be able to cross-examine
18 on the potential of 1,000 megawatts.

19 Mr. Clayton is basing his evidence on our
20 information to him that we will call evidence to prove
21 there is 1,000 megawatts of cogeneration potential in
22 Northern Ontario.

23 THE CHAIRMAN: But in the paper he relies
24 on the research of Northwatch Intervention Coalition to
25 come to the conclusion that there is something in the

1 order of 1,000 megawatts. I think the question was
2 quite appropriate by AMPCO, which is, what is that on
3 which he relies. I take it you say it's a study --

4 MR. GREENSPOON: It's a study that will
5 be filed in Panel 3.

6 THE CHAIRMAN: So we take it that this
7 paper is not in any way evidence that there is 1,000
8 megawatts available.

9 MR. GREENSPOON: No, this paper is
10 evidence of what can be done if we can prove there is
11 1,000 megawatts.

12 MR. RODGER: I take it the entirety of
13 that research that results in the conclusions of the
14 1,000 megawatts finding, I take it all that material
15 will be filed in Panel 3, was it?

16 MR. GREENSPOON: Yes.

17 MR. RODGER: Q. So I take it from that,
18 Mr. Clayton, that you have not seen that research
19 yourself?

20 A. No, sir, I have not.

21 Q. Now staying with that paragraph, you
22 also state that there is research of other
23 organizations which come to the same conclusion as
24 Northwatch. Did you see that evidence from the other
25 organizations that you mention?

1 A. There was a paper by Ontario Hydro
2 which I used or checked through and it came to similar
3 conclusions.

4 Q. That would be the 1989 or 1990 NUG
5 plan?

6 A. Yes, sir.

7 Q. And were there other organizations
8 whose research contributed to the --

9 A. No.

10 Q. So this was Ontario Hydro's document
11 and it was the research of Northwatch which we will see
12 in Panel 3?

13 A. Yes. Both of which came to
14 approximately the same numbers so I concluded that the
15 order of magnitude was roughly correct.

16 Q. Now, the final sentence of that
17 paragraph states that:

18 While the availability of small hydro
19 may not be sufficient to satisfy all
20 future growth in the North, it should
21 nevertheless form a key component of any
22 resource plan.

23 Sir, how do you define small hydro?

24 A. That's a very difficult one. I would
25 probably -- it's a subjective call. I would probably

1 in my mind say small hydro could be something less than
2 50 megawatts.

3 THE CHAIRMAN: Fifty?

4 THE WITNESS: Fifty, sir, yes.

5 I think the B.C. government characterizes
6 it in its policy statement, if memory serves, as
7 something less than 100 megawatts.

8 MR. RODGER: Q. But you are comfortable
9 with under 50 megawatts?

10 A. I would say that, yes.

11 Q. So I would take it then, as part of
12 the thrust of your paper which Mr. Greenspoon helped to
13 indicate in your direct evidence, that you - and
14 presumably Northwatch - would support the development
15 of small hydro projects under 50 megawatts in the
16 North?

17 MR. GREENSPOON: Well, just a minute now.

18 This witness is called as a system
19 planner. He indicated what his opinion was of small
20 hydro as an expert. We are not calling him -- we will
21 be calling hydroelectric evidence in Panel 3, evidence
22 as to what we feel is appropriate hydraulic
23 development. So far my friend --

24 THE CHAIRMAN: I know, but once you put
25 the witness on the stand, as long as its relevant to

1 this hearing he can ask the question.

2 MR. GREENSPOON: All right.

3 THE WITNESS: I'm sorry, would you please
4 repeat?

5 MR. RODGER: Q. Yes. You have told me
6 that in your view small hydro would be under 50
7 megawatts and in the exhibit which you authored, on
8 page 4, you state that:

9 While the availability of small hydro
10 may not be sufficient to satisfy all
11 future growth in the North, it should
12 nevertheless form a key component of any
13 resource plan.

14 So I am asking, does that mean that you
15 would endorse and since you are representing Northwatch
16 here, presumably Northwatch would endorse, development
17 of Hydro projects under 50 megawatts projects in the
18 North.

19 THE CHAIRMAN: Wait a minute. I think he
20 made that distinction quite clear at the beginning that
21 he is here to give his opinion, his views, whether they
22 coincide with the views of Northwatch is a matter for
23 discussion later on, but I don't think he should be
24 asked the question quite in those terms.

25 MR. RODGER: Q. Well, your views in the

1 matter, sir, as I framed it.

2 A. I think we should read the words very
3 carefully.

4 I have said:

5 While the availability of small hydro
6 may not be sufficient to satisfy all
7 future growth in the North, it should
8 nevertheless form a key component in any
9 resource plan.

10 And the operative word there is "plan",
11 by that I mean you have don't over look it. You
12 include it in the plan. Whether you ultimately go to
13 the extent of developing it depends on a host of
14 factors. My thesis is don't overlook potentially
15 attractive resources in your plan.

16 Q. So, for example, just as a
17 hypothetical, assume that north of Sudbury, for
18 whatever reason, needed 49 megawatts of new generation,
19 and there happened to be a hydraulic site north of
20 Sudbury that was approximately 49 megawatts, you
21 certainly wouldn't write-off that option at first
22 blush. You would consider that project and it might
23 well work out to be viable and acceptable.

24 A. I think so, yes.

25 Q. Now, on page 5 of your paper, at the

1 very bottom of the page you talk about transmission
2 losses and how your view of planning might be able to
3 reduce line losses. And on page 6, the last sentence
4 of the first paragraph, it reads:

5 Depending on loading and distance, the
6 losses on a high voltage long distance
7 transmission line may be some 7 to 12 per
8 cent for power and possibly half that for
9 energy.

10 Sir, with that reference, were you
11 contemplating such losses on Ontario Hydro lines?

12 A. I was referring to losses on high
13 voltage long distance transmission lines. If Hydro has
14 high voltage long distance transmission lines then that
15 statement could possibly apply.

16 Q. Could you point to any research or
17 evidence that you have done on the Ontario Hydro
18 transmission system which would substantiate that
19 statement?

20 A. No, I have done no research. The
21 figures given are not untypical for bulk power
22 transmission across high voltage lines.

23 You will appreciate what I am talking
24 about by way of a per cent loss, I am referring to the
25 difference between the power at the receiving end of

1 the line and the power at the sending end of the line,
2 the difference between those two, divided by the
3 receiving end power, multiplied by 100 to get a
4 percentage.

5 I am also referring to that point during
6 the course of the year when the line is at its maximum
7 load, and it may occur perhaps only once, I don't know.
8 It depends on where the line is on and the duty to
9 which it's put.

10 I would also observe that losses are a
11 design, are controllable through design, and the extent
12 of loss that one tolerates is a function of the value
13 of the electricity. If the electricity has a high
14 value, then you will design your transmission line
15 through conductor sizing and other design parameters to
16 ensure that the losses are kept to a minimum.

17 So you have a controllable element. What
18 I was trying to indicate here is a range that is not
19 unusual for long distance high voltage bulk power
20 transmission.

21 Q. Those clarifications are helpful.

22 One final point, sir, if we go back to
23 page 5, under paragraph A, Improved Economics and
24 Efficiency, and you talk about the benefits of
25 cogeneration to industry in the North, and in your

1 direct evidence you stated, however, and you recognize
2 that cogeneration potential could be limited to the
3 extent that it was economic. And my question for you
4 is, have you studied industries that are located in the
5 North to ascertain whether cogeneration is economically
6 viable?

7 A. I have not done an industry by
8 industry study, no.

9 Q. What studies have you done in that
10 regard then?

11 A. Theoretically I have done no studies
12 at all. But I am aware of two cogeneration facilities
13 that have gone into the North, at least two, one is the
14 Boise Cascade at Fort Frances, and the other is the
15 Lake Superior installation at St. Marys Pulp and Paper.
16 I presume they were put in because they were economic.
17 And it didn't seem to me particularly illogical to
18 extrapolate that there may be other industries in the
19 North which could also benefit from cogeneration.

20 I would make a parenthetical observation
21 too, based on work that I have done elsewhere in Canada
22 and the United States, that a great many industries
23 don't appreciate the advantages that cogeneration can
24 bring. And that's not meant to be a derogatory remark;
25 it's simply because their principal business is often

1 something other than electric power production. In
2 many instances an industry looks at it from the
3 perspective only of self generation; in other words,
4 what it can use within its own facilities, and fails to
5 give due credit to the extra electricity sales and
6 revenues that can be derived therefrom.

7 Q. So when you say in your paper there
8 is potentially 1,000 megawatts of cogeneration in the
9 North, which is based on Northwatch's research which we
10 of we will hear about in Panel 3, you haven't gone out
11 yourself to canvass Ontario industry to see how much of
12 that 1,000 megawatt potential could be satisfied
13 through cogeneration?

14 A. No, sir, I haven't.

15 MR. RODGER: Those are all my questions.
16 Thank you.

17 THE CHAIRMAN: Thank you, Mr. Rodger.

18 Mr. Watson?

19 THE CHAIRMAN: Perhaps you could also
20 tell the witness who you represent.

21 MR. R. WATSON: Thank you, Mr. Chairman,
22 I will.

23 CROSS-EXAMINATION BY MR. R. WATSON:

24 Q. Mr. Clayton, my name is it Reg
25 Watson, I represent the Municipal Electric Association.

1 [9:55 a.m]

2 Mr. Clayton, as you know we asked a
3 series of interrogatories and I would like to refer you
4 to the first one of those that's been given the number
5 B6.9.1

6 THE REGISTRAR: B6.9.1 is 781.6.

7 ---EXHIBIT NO. 781.6: Interrogatory No. B6.9.1.

8 MR. R. WATSON: Q. Do you have the
9 interrogatories in front of you, sir?

10 A. I have, sir.

11 Q. Sir, that interrogatory refers to the
12 third page of your evidence, and it was in asking for
13 system planning or other studies that supported your
14 conclusion that regional generation is the least cost
15 alternative for Ontario Hydro.

16 You indicated that in your answer, 1, no
17 formal system planning study was made; 2, you made no
18 claim that regional generation was the least cost
19 alternative. And in your last paragraph you indicated
20 it was recognized that for a variety of economic,
21 technical, environmental and other reasons it may not
22 be practical to develop regional generation.

23 And my simple question to you sir, is:
24 That interrogatory answer still represents your views
25 on the matter?

1 A. May I offer one qualification?

2 Q. Sure.

3 A. When I spoke about it may not be
4 practical to develop regional generation, I did not
5 mean in total. I was referring to the fact that there
6 may be specific opportunities, specific generation
7 opportunities, which may not be economically practical
8 to develop. So with that distinction I would continue
9 to support that statement.

10 Q. And in the same way, sir, what you
11 are also saying is this isn't a general concept that
12 you can apply across the board?

13 A. I think it's a general concept if one
14 accepts the premise that it makes more sense to put
15 your generation close to your load. And that is really
16 the concept upon which this whole, this whole paper is
17 predicated.

18 If the generation is close to the load
19 centre, it seems to me anyway to make a lot more sense
20 than putting the generation remote from the load centre
21 and carrying the power over long distance high voltage
22 lines.

23 Now the point I'm trying to make here is
24 that if you carry that to ridiculous extremes and
25 attempt to develop projects which are blatantly

1 uneconomic but pursue them simply because they are
2 located in the region, that of course doesn't make good
3 planning dictum either.

4 Q. Sir, can we agree on this, as you
5 have indicated there are a variety of reasons for which
6 it may not be practical to develop regional generation
7 and therefore this should be looked at on a
8 case-by-case basis?

9 A. Indeed. And I might make the same
10 point that there may be a variety of reasons why it is
11 impractical to run in a transmission line.

12 Q. Sir, the next interrogatory I would
13 like to refer to is B6.9.3.

14 THE REGISTRAR: B6.9.3 is 781.7.

15 ---EXHIBIT NO. 781.7: Interrogatory No. B6.9.3.

16 MR. R. WATSON: Q. Sir, the question
17 there was: For the cogeneration potential cited on
18 page 4, please provide the analysis that show that this
19 potential is economic to develop compared to other
20 alternatives.

21 A. Excuse me, which?

22 Q. 6.9.3.

23 A. I don't have a 6.9.3.

24 Q. You probably have... The second page
25 of your interrogatories, it's a question No. 3.

1 A. Thank you.

2 Q. All of these interrogatories, sir,
3 have been given a number by Ontario Hydro. It's a
4 number that we all use so that we are all talking the
5 same language.

6 A. I guess that information was not
7 shared with me.

8 Q. So you have the interrogatory now?

9 A. I believe so, yes.

10 Q. Sir, I would like to refer you to
11 your answer. You indicated in the first sentence:

12 I have no cost data for the various
13 generation alternatives available to
14 Ontario Hydro.

15 And that's still your evidence and that
16 was the state of your knowledge when you did this
17 paper?

18 A. Just bear with me, I want to check
19 the point, if I may.

20 Yes, the only proviso I would offer is
21 there were some data given in the Ontario Hydro NUG
22 study.

23 Q. Sorry, I didn't follow that answer.

24 A. There were some data regarding the
25 economic viability, in the most general of terms, given

1 in the Ontario Hydro so-called NUG study. Do you know
2 the one to which I refer?

3 Q. I believe you are referring to
4 Exhibit 83.

5 A. That could very well be. I don't
6 have an exhibit list. I have the paper though.

7 Q. It's the 1990 NUG plan.

8 A. Yes. The paper is entitled "Ontario
9 Hydro 1989 Non-Utility Generation Plan."

10 Q. Sir, Mr. Rodger has already canvassed
11 with you the issue of studies with respect to
12 cogeneration, and I won't deal with that.

13 On page 4 of your paper, sir, you speak
14 of the potential advantages of your concept and you
15 then go on to speak of four advantages. Mr. Rodger
16 dealt with some of the transmission losses in your
17 point B. On page 6 your third advantage is
18 reliability. And, sir, as I understand your evidence
19 this morning, it is your position that your concept
20 still requires transmission; is that fair?

21 A. That is fair.

22 Q. It still requires inter-regional
23 transmission?

24 A. Yes, I'm not talking about severing
25 the ties between the west and the east systems.

1 Q. And the reason you need that
2 transmission is because the reliability would decrease
3 considerably without it; isn't that fair?

4 A. Not necessarily.

5 Q. Isn't it fair to say, sir, that in
6 small regions if there were smaller numbers of
7 generators, that could lead to a requirement for a
8 higher reserve margin?

9 A. It all depends on the availability of
10 the units.

11 Q. Isn't it fair to say, sir, that the
12 smaller the number of units generally the higher the
13 reserve margin that is required?

14 A. I don't think so.

15 Q. And why do you say that, sir?

16 A. Well, it all depends on the system
17 size.

18 Q. We're talking about small regions
19 here, aren't we?

20 A. Well, we are talking about the west
21 region, I presume. I am.

22 Q. Okay. Well, let's take a minute and
23 clarify that. When you are talking about regional
24 growth being met by regional supply, are you talking
25 about the five regions that Ontario Hydro has or are

1 you talking about smaller segments?

2 A. I'm focusing primarily on what I
3 believe is called the west region.

4 Q. So your evidence is only --

5 A. The northwest region.

6 Q. So your evidence is only applicable
7 to the northwest region; it doesn't apply to the other
8 four regions of Ontario Hydro's system?

9 A. I don't think that is quite right
10 either. I mean, if a principle is applicable in one
11 region, it should be applicable in other regions. I
12 think it's a matter of degree that we may be arguing
13 over here.

14 Q. So what you are saying is your
15 concept of regional growth being met by regional supply
16 is a concept that is applicable to all five of Ontario
17 Hydro's regions?

18 A. To the extent that they have
19 resources contained within the regions, I would think
20 yes. I see no reason why one should focus on the
21 development of cogeneration in the northwestern or
22 northeastern regions to the exclusion of southern
23 Ontario. That doesn't make a great deal of sense.

24 Q. Sir, in looking at a small -- looking
25 at the northeastern region, would you agree with me

1 that if you installed a large, a relatively large
2 cogenerator or relatively large hydraulic plant, that
3 could have system reliability impacts?

4 A. If the size of the installation were
5 large compared to the system, yes.

6 Q. And you would certainly agree with me
7 that Ontario Hydro currently has on its system
8 cogeneration units that are larger than say 200
9 megawatts? Your review of the 1989 NUG plan revealed
10 that to you, didn't it?

11 A. Frankly I'm trying to remember. You
12 seem more confident than I am so I will take your word
13 for it. I just can't frankly recall.

14 Q. Well, put it this way, Mr. Clayton.
15 You would agree that if in fact there were units that
16 were greater than 200 megawatts, if there were units
17 that were say greater than say even 100 megawatts,
18 those are relatively large units that could have an
19 impact on system reliability.

20 A. To be perfectly honest I'm not in a
21 position to answer that. I would have to look at the
22 magnitude of the generation that existed in the region,
23 the loads, the nature of the plant, because not all
24 plants have the same availability, and then I could
25 be -- I would be in a better position to answer your

1 question.

2 I would point this out however. If we
3 are talking reliability, it's not unusual for a modern
4 gas-fired combined cycle type of cogeneration facility
5 to achieve availabilities in the order of 95 per cent.

6 Q. Sir, as we are talking about
7 reliability, aside from what you have mentioned in this
8 paper you haven't done any reliability analysis such as
9 LOLP analysis, frequency and duration analysis, value
10 of service, anything like that?

11 A. In connection with this particular
12 study or ever?

13 Q. That's right, in connection with this
14 study.

15 A. No.

16 Q. Thank you. The last advantage you
17 mention is environmental impacts, sir. As I understand
18 what you are saying is your concept, you feel, will
19 have less environmental impacts than the construction
20 of transmission lines?

21 A. I think in earlier testimony this
22 morning I indicated that that is a very subjective
23 call.

24 Q. But that's the call you have made?

25 A. My personal view is that a

1 site-specific project in all likelihood will have less
2 environmental impact than will a long corridor type.
3 But you can then go ahead and trap me in a variety of
4 ways with that statement. But, you know, as a general
5 rule I would think that that is a fair statement to
6 make.

7 Q. Sir, just one comment on that, one
8 question on that. You are talking about potential
9 generation from basically cogeneration, potential
10 supply from cogeneration?

11 A. Is that a question?

12 Q. Yes.

13 A. Not exclusively. I focus on
14 cogeneration because it's I suppose in vogue today, but
15 reference is also made in the paper to small hydro
16 plant, apparently I didn't make them small enough.

17 Q. You will have to talk to your counsel
18 about that.

19 A. I'll have to talk to that one, yes, a
20 problem there.

21 And there may be other forms of
22 generation that would be caught up in the resource mix.

23 Q. Is it fair to say that you say to a
24 lesser extent it would be small hydro, cogen and to a
25 lesser extent small hydro; is that fair?

1 A. That is correct. And the reason for
2 that was that I understood that the potential for small
3 Hydro development was less. The NUG study seemed to
4 indicate that there was just not that much developable.

5 Q. And as you indicated this
6 cogeneration potential is at industrial sites
7 basically?

8 A. Generally speaking, yes.

9 Q. And you will know from your review of
10 the 1989 NUG plan and the 1990 NUG plan that much of
11 the cogeneration potential is at pulp and paper plants;
12 isn't that fair?

13 A. You are going to have to become more
14 region specific because as a general rule that would
15 not necessarily apply.

16 Q. In the north, in the northeast
17 region?

18 A. That's probably true although I would
19 not exclude other industrial possibilities.

20 Q. Yes. Well, I'm not trying to get a
21 hundred per cent accuracy on this, sir. The thrust is
22 that much of the potential is at pulp and paper mills
23 and --

24 A. Let me interrupt, if I may. The
25 thing that one looks for in a good cogeneration

1 application is a facility that has a need in its
2 process for waste heat. That's a good sort of generic
3 rule.

4 In most instances the waste heat from a
5 cogeneration facility is in the form of steam or hot
6 water, if you will. So wherever you have an
7 opportunity to employ the waste heat, district heating,
8 steam in a pulp and paper process, what have you, then
9 you have potential for cogeneration application.

10 Q. Sir, back to my question. We are
11 talking about the cogeneration potential, and a lot of
12 that appears to be at pulp and paper plants. As a
13 result of that, it seems to me that what you are saying
14 is that you would prefer pulp and paper plants to
15 transmission lines on an environmental basis?

16 A. That's not true at all.

17 Q. Would you tell me why.

18 A. Well, the pulp and paper plant is
19 already there. I'm not advocating that you build a
20 pulp and paper plant so you can put in a cogeneration
21 facility.

22 Q. What about future demand?

23 A. For?

24 Q. Electricity.

25 Your thesis is that you are going to meet

1 much of that with cogeneration.

2 A. My thesis is that to the extent that
3 cogeneration opportunities exist within already
4 existing industrial facilities, they should be taken
5 advantage of.

6 Q. And after that?

7 A. Time will tell. I have no idea.
8 Whatever the resource may be most effective at that
9 time. How long down the road are we going to look?

10 Q. So after the cogeneration potential
11 has gone you can't help us with what would take its
12 place in a regional supply?

13 A. I can't, I don't know that I can't
14 help you but I just don't know what time frame you have
15 in mind here. Are you talking 50 years down the road
16 or 10 years down the road?

17 Q. Well, this is a 25-year plan that we
18 are reviewing, sir, and the question is when the
19 cogeneration potential is gone, you haven't turned your
20 mind to what is going to replace that in your regional
21 supply concept.

22 A. Well, one assumes that by that time
23 demand side management impacts may be becoming a
24 reality. There may even be new technology that one can
25 consider. But specifically I have not sat down and

1 asked myself the question and developed a plan as to
2 what will happen once all of the available resources in
3 a region, traditional resources in a region have been
4 utilized.

5 Q. Sir, the next interrogatory I would
6 like to refer you to is your No. 8. That is B6.9.8.

7 THE REGISTRAR: Which is 781.8.

8 ---EXHIBIT NO. 781.8: Interrogatory No. B6.9.8.

9 THE WITNESS: Is this your question 8?

10 MR. R. WATSON: It is, sir.

11 MR. GREENSPOON: I anticipated this
12 question. The way I propose to deal with this issue is
13 that I will undertake to provide my friend with a gas
14 line transmission map of Ontario which I hope I can get
15 from ONGA. I don't see ONGA here today.

16 [10:15 a.m.]

17 That information is not in our
18 possession. I would think that MEA would have access
19 to a pipeline map of Ontario just as well as I would,
20 but I'll try and get him one.

21 MR. R. WATSON: If I could get an
22 undertaking number for that, Mr. Chairman?

23 THE CHAIRMAN: Undertaking number?

24 THE REGISTRAR: Undertaking 783.3.

25

1 ---UNDERTAKING NO. 783.3: Northwatch undertakes to
2 provide a gas line transmission map of
 Ontario.

3 MR. R. WATSON: Q. So I gather from what
4 Mr. Greenspoon has just told us, Mr. Clayton, you
5 certainly didn't have any such information when you
6 were looking at your study?

7 A. Not specifically, no.

8 Q. Finally, sir, on page 8, your
9 conclusions, you say it's your view that Hydro should
10 be directing its long-term planning strategy toward the
11 development of regional supply to meet regional demand.
12 Aside from what you have stated in this paper, you have
13 no analysis to support that view; is that fair?

14 A. No traditional analysis. I mean, if
15 you are looking for a comparison of resources that
16 could be developed against future load growth in the
17 region, I do not have that kind of data available to
18 me.

19 MR. R. WATSON: Thank you, sir.

20 Those are my questions, Mr. Chairman.

21 THE CHAIRMAN: Before I call on Mr.
22 Campbell, is there anyone else who wants to cross-
23 examine this witness?

24 Mr. Campbell?

1 CROSS-EXAMINATION BY MR. B. CAMBPELL:

2 Q. Mr. Clayton, could we get out the map
3 again, please. This is just an excuse for me to show
4 where I go fishing, but I will perhaps take it a little
5 farther than that.

6 I would like to look again at Hearst and
7 Long Lac. Have you found that again?

8 A. Yes, I have.

9 Q. Now, I take it you have not done any
10 review of the system in northeastern Ontario?

11 A. Not detail, no.

12 Q. Or in the regions that are called
13 northwestern and northeastern region here?

14 A. Not in detail.

15 Q. Now, in looking at this map, can you
16 see the line to Hearst on the northeast region, and I
17 am advised that it is a 115 kV line?

18 A. I see it and I think I now agree with
19 you. I did have trouble with the differentiation
20 between the green and the blue. But I now read it as
21 being green in which case it should be 115 kV.

22 Q. It would be consistent with your
23 experience to recognize that line and that kind of
24 configuration as being a radial feed to Hearst?

25 A. Yes, indeed, and probably a fairly

1 light line.

2 Q. Yes. And supporting a load I
3 think -- I think the Hearst load is something in the
4 area of 30 megawatts, that would be a fairly light
5 line, to use your analogy.

6 A. I would agree.

7 Q. Now, similarly, would you recognize
8 the line to Long Lac as also being typically what
9 occurs in systems of this type, being a radial feed?

10 A. I concur.

11 Q. Do you have any information on the
12 size of load that's supported at Long Lac and at
13 intervening points on that line?

14 A. No.

15 Q. Is it fair to say then that in terms
16 of a line being between Hearst and Long Lac as
17 providing any significant support from an east/west tie
18 point of view, that you simply can't express a
19 reasonable opinion on that matter without considerably
20 more work, or at least knowing the exact capabilities
21 of the line supporting Hearst and Long Lac?

22 A. I think I have to retrench once I
23 realized that is a 115 kV line a rather than 230.

24 In an attempt to defend my position I
25 might point out that it may be possible to reconductor

1 the line, reinsulate it, do something to it to increase
2 its power transfer capability and in some way
3 incorporate it as an interconnection between the two
4 systems.

5 Q. Where you would say, I take it, that
6 when one looks at putting transmission lines in areas
7 like this, those kinds of alternatives are ones that
8 may be considered, but whether at the end of the day
9 they are a good idea depends on the outcome of the
10 specific studies.

11 A. I think that is a fair statement.

12 Q. And you have conducted no such
13 studies?

14 A. I don't have the facilities to
15 conduct such studies, Mr. Campbell.

16 Q. The simple answer then as I take it
17 is, no, you have not conducted any studies.

18 A. That is the simple answer, yes.

19 Q. Now, Mr. Clayton, I understand that
20 you appeared as an expert witness in the hearing that
21 my friend referred to this morning, a capital program
22 review hearing in Manitoba in 1990?

23 A. That is correct.

24 Q. Now, the notation of that hearing is
25 not in your CV as I recall; am I correct in that?

1 A. I think that may be correct. The CV
2 unfortunately is not as up-to-date as it perhaps should
3 be.

4 Q. All right. Well, just to be clear
5 then, I raise that simply because I want to be clear on
6 what your role was in that hearing. As I understand
7 it, you were retained as an independent expert witness
8 by the Board.

9 A. That is correct.

10 Q. You did a review of certain matters,
11 came to some conclusions and presented those
12 conclusions to the Board and were cross-examined upon
13 them?

14 A. That is correct.

15 Q. Now, I want to take you to some of
16 those conclusions in a moment, but just by way of
17 background to that, and in considering the operation of
18 the Ontario Hydro system, if we think of the west
19 system, sort of west of the top of Lake Superior, we
20 think of the northeast system and we think of southern
21 Ontario, you would agree with me, would you not, that
22 there are, in general terms, sort of concentrations of
23 load and supply in each of those three areas and there
24 are inter-area transmission networks connecting them,
25 the east/west tie being perhaps the thinnest of those?

1 A. Yes, sir.

2 Q. In many respects, that's similar to
3 the operation of interconnected systems; that is, one
4 could posit a situation where it's analogous to a
5 utility in northeastern Ontario, and a utility in
6 northwest and a utility in the south and with
7 interconnections between them?

8 A. I wouldn't perhaps go quite that far,
9 Mr. Campbell.

10 Q. All right. I guess I am perhaps
11 making this overly complicated.

12 If you step back to my original question,
13 sort of concentrations of load and supply and
14 interconnected by various transmissions, you would
15 agree, I take it, that there can be advantages from an
16 overall system point of view to looking at the
17 co-ordinated development and operation of those three
18 areas.

19 A. Yes, I believe so.

20 Q. Now, in your testimony in Manitoba,
21 you indicated that there are a number of potential
22 advantages to exchanges between systems, and in this,
23 just to be clear, you were testifying in particular as
24 part of your testimony, not your entire testimony but
25 as part of it, on the advantages and disadvantages of

1 interconnection agreements, and in particular the
2 agreement that has been entered into for 1,000 of
3 interchange between Manitoba Hydro and Ontario Hydro;
4 is that correct?

5 A. I was testifying in connection with
6 those items, yes, those matters.

7 Q. In dealing generally with the matter
8 of interconnection agreements, you made a number of
9 points and what I would like to do is ask whether you
10 still hold these views. Would you agree that in
11 principle inter-utility exchanges are beneficial to
12 both parties?

13 A. Inter-utility exchanges, yes.

14 Q. Can you say the same thing for
15 exchanges, for instance, between the north and south
16 part of Ontario, that in principle there could be
17 advantages to Ontario Hydro in operating its system in
18 that integrated way?

19 A. Yes, that's possible.

20 Q. And these advantages can arise for
21 reasons like capacity swaps because of daily or
22 seasonal differences in the timing of peak demand
23 between the two systems; that is diversity benefits?

24 A. Yes.

25 Q. And you, as I understand it, are a

1 very strong believer in diversity benefits?

2 A. I am a believer in the fact that
3 there are benefits of various types to be gained by
4 inter-system interconnection, yes.

5 Q. All right. But is it not fair to say
6 that your view is that diversity exchanges, that in
7 your opinion they should be encouraged, they should
8 last as long as they can, and that they provide a
9 considerable degree of flexibility and it provides a
10 most economic way of obtaining reserve capacity as and
11 when you may need it?

12 A. Correct.

13 Q. Now, have you examined the flows
14 between northern and southern Ontario to determine
15 whether these diversity benefits are available on a
16 daily, weekly, monthly, annual basis?

17 A. No, I have not.

18 Q. Then I will have to posit to you as a
19 hypothetical, which I will eventually submit is clearly
20 in the evidence but you won't have any direct knowledge
21 of that, to the extent that, for instance, on a daily
22 basis flows on north/south connections in Ontario flow
23 for part of the day north, for part of the day south,
24 taking advantage of different types of resources, some
25 with energy limitations, that would be an example of a

1 diversity benefit?

2 A. I suppose so. I tend to think more
3 that the diversity benefits arise from timing
4 differences in times of peak demand on the system, or
5 seasonal characteristics that may require seasonal
6 interchanges, but if that's what you have in your mind,
7 in your posit, yes, I would agree.

8 Q. Now, is it not also your view that
9 when interchanges are in place between systems, or
10 interconnections are in place between systems and
11 presumably appropriate transmission support is in place
12 to support those interconnections, that system
13 reliability is usually enhanced because the parties are
14 able to support each other during periods of emergency?

15 A. That is correct.

16 Q. Similarly, the ability to market
17 surplus energy on an interruptible basis produces
18 revenues that might otherwise be lost?

19 A. Indeed.

20 Q. Economy energy transactions, a form
21 of surplus sale, may permit operational savings to be
22 affected by one or both participants?

23 A. Yes.

24 Q. Now, Ontario is a very big system and
25 I have talked to you in terms of interconnections, but

1 if one develops a system in a co-ordinated way, cannot
2 all those benefits be achieved by appropriate
3 co-ordination of development even though it happens
4 that the system is all operated in this case by Ontario
5 Hydro? The kinds of advantages that flow from those
6 things that you have agreed with can be available
7 within a system, the border is no particular magic.

8 A. No, the border is not magic.

9 Interconnections can be used for a variety of purposes,
10 and the one thing that was not included in what I take
11 to be quotes that you are reading from my testimony
12 before the Manitoba PUB is the matter of unilateral
13 power transfers which were not included in the bundle
14 of goodies that you attribute to interconnection
15 benefits.

16 Q. But my question is, that bundle of
17 goodies, those goodies can be available within a system
18 as well as between systems?

19 A. I would think so.

20 Q. And again I take it you have made no
21 particular study of whether those goodies are in fact
22 being achieved on the Ontario Hydro system?

23 A. No, I have not.

24 Q. Now, I want to confirm specifically
25 that one of the things you did in your Manitoba

1 testimony was to express an opinion to that Board as to
2 whether the contract should be entered into or should
3 be endorsed by that Board.

4 A. I'm sorry, I misheard your question.
5 Could you repeat that?

6 Q. One of the things you did in your
7 Manitoba testimony was express an opinion, having
8 considered a wide range of matters, as to whether that
9 contract should be endorsed by that Board.

10 A. Yes.

11 Q. Your opinion was that it should be.

12 A. With, I believe, one proviso, if I
13 recall correctly.

14 Q. I am not suggesting that you didn't
15 say there are aspects of it that you felt could be
16 approved. I am not suggesting that at all.

17 I am saying that when it came to the
18 bottom line, as it stood, when that question was put to
19 you, you said, yes, the Board should recommend it?

20 A. That is correct.

21 Q. Mr. Clayton, in expressing your view
22 on the environmental impacts of transmission versus
23 generation - my questions may be biased by the fact
24 that I have transmission advisers with me today, but I
25 don't think so, I will try and work a little bit around

1 that - but can I take it that your -- well, in fact you
2 have been quite explicit, this is a personal view, and
3 you have not, as I understand it, conducted any
4 rigorous analysis or provided any documentation to Mr.
5 Greenspoon or anyone else to support that view. It
6 flows from your experience.

7 A. Yes.

8 Q. Now, if one was to -- let me put it
9 this way. I take it then that it would be possible
10 that your view of that would be tempered by the results
11 of a study that looked at that question in considerable
12 detail, if those kinds of considerations were available
13 you would want to look at that in clinging to your
14 opinion or changing it?

15 A. How long is the study? [Laughter.]

16 Q. Well, I am not asking you how long, I
17 am not going to ask you how long a study is required;
18 I am just asking you if that kind of analysis had been
19 done, that's the kind of thing you would want to look
20 at in testifying to that opinion?

21 A. My question about the length was how
22 long it's going to take me to read it, because I
23 suspect the study exists.

24 Q. I really just want to deal with some
25 of the matters that you would see as appropriate to

1 consider in such an analysis. I take it you would want
2 to consider the different kinds of generation that you
3 are talking about. There are environmental differences
4 between conventional steam cycle, IGCC, CANDU,
5 combined-cycle, gas turbines, you would want to
6 consider the range of options that you are looking at--

7 A. Yes.

8 Q. --in making in a statement generally?

9 A. Clearly.

10 Q. I take it you would want to look at
11 natural environment impacts such as resource use, fuel,
12 land use, water use, those would all enter into that
13 kind of consideration?

14 [10:35 a.m.]

15 A. Presumably, yes.

16 Q. And they would be appropriate
17 considerations?

18 A. I would think so, yes.

19 Q. And similarly you would want to look
20 at emissions, effluence, waste, air, water, those kinds
21 of things?

22 A. Yes, sir.

23 Q. And they would be appropriate
24 considerations?

25 A. Yes, sir.

1 Q. And you would want to look at what
2 could generally be called the socio-economic
3 environment: things like employment, regional
4 development, local community impacts, special or
5 sensitive interests, lifestyle changes, distribution of
6 risks and benefits, social acceptance generally? Those
7 kinds of considerations you would also want to consider
8 in work of that type?

9 A. I believe they should be considered,
10 yes.

11 Q. And again it would be appropriate to
12 consider those kinds of items?

13 A. Yes, sir.

14 Q. And I take it that in expressing this
15 view on behalf of -- or in your appearance here on
16 behalf of Northwatch that you have not taken any,
17 undertaken any rigorous analysis of those types of
18 matters?

19 A. No, I have not.

20 Q. Mr. Clayton, could you turn up what
21 in your list will be question 6 of questions from
22 AMPCO. And it's a question that starts:

23 Is it Northwatch's position that
24 Ontario Hydro would be better served....

25 A. Yes, I have that.

1 Q. Mr. Chairman, we have just decided
2 just deal with this one side so I have to separate my
3 bundles.

4 I will give you the one I've given the
5 Board. It's marked with a code number.

6 A. Thank you, Mr. Campbell.

7 THE CHAIRMAN: That will be B6.24.6.

8 THE REGISTRAR: That is 781.9.

9 ---EXHIBIT NO. 781.9: Interrogatory No. B6.24.6.

10 THE CHAIRMAN: Thank you.

11 MR. B. CAMPBELL: Q. Now Mr. Clayton,
12 for the purposes of this question I will just read what
13 the question says:

14 Is it Northwatch's position that
15 Ontario would be better served by
16 developing power systems on a regional
17 basis using small generating sources with
18 little or no transmission interconnecting
19 the regional systems?

20 And it goes on: If so, please show this
21 and that.

22 In light of the answer I won't worry
23 about the last half.

24 The answer that was received is:

25 No, it is not.

1 Now, I guess my question to you in light
2 of your earlier exchange: I want to be absolutely
3 clear that in giving this answer you received
4 instructions that this was not Northwatch's position?

5 A. It is my understanding that it is not
6 Northwatch's position and it was a position with which
7 I could agree.

8 Q. All right. So you agree with the
9 position and you were advised --

10 A. I disagree with the statement. I
11 agreed with the position.

12 Q. You agree.... All right.

13 You're happy with the answer both in your
14 professional opinion, as I understand it, and you have
15 been advised that this answer reflects Northwatch's
16 position?

17 A. I believe that is correct, yes.

18 Q. Well have you been advised that this
19 represents Northwatch's position?

20 A. I was not advised at this point in
21 time. But since having the opportunity to discuss the
22 issue with Northwatch, it is my understanding that they
23 are in harmony with this answer.

24 MR. B. CAMPBELL: Thank you. Thank you,
25 Mr. Chairman. Those are my questions.

1 THE CHAIRMAN: Mr. Rodger, any further
2 questions?

3 MR. RODGER: No, sir.

4 THE CHAIRMAN: Mr. Watson?

5 MR. R. WATSON: No, sir.

6 THE CHAIRMAN: Mr. Greenspoon, any reply
7 questions?

8 MR. GREENSPOON: Just a couple, Mr.
9 Chairman.

10 THE CHAIRMAN: Dr. Connell has some
11 questions, I'm sorry, I keep forgetting that.

12 MR. GREENSPOON: That comes before
13 redirect, does it. Sorry, Dr. Connell.

14 EXAMINATION BY DR. CONNELL:

15 Q. Mr. Clayton, if I could direct your
16 attention to page 7, the two paragraphs beginning:

17 It is evident that an area or a region
18 that relies on transmission from
19 outside....

20 I would just like to try to get a little
21 better picture of what you have in mind for this
22 region. Could I imagine a community at the end of the
23 line that has a peak load of something of the order of,
24 is it 50 megawatts? Would that be a reasonable example
25 to look at?

1 A. With all respect, sir, that statement
2 was not really directed towards a radial load. I was
3 thinking more of a region that comprised a number of
4 loads, a broader area, if you will, than some specific
5 community.

6 Q. I see.

7 A. Or close grouping of communities.

8 Q. Could you suggest an example from the
9 west region?

10 A. Well, when I look, when I undertook
11 this task, I viewed the west region as a region; and
12 when I spoke of the region, I was referring
13 substantially to what is characterized on the
14 transmission map as the northwest region.

15 Q. I see. So, when you begin with
16 referring to an area or region you're speaking of the
17 entire --

18 A. I am talking of a larger geographic
19 extent.

20 Q. Yes. Well, let me imagine then that
21 that entire region could be fully served in the ways
22 that you have envisaged; that is, that the peak load
23 could be met by development of small hydro and
24 cogeneration; that that would be the ideal I take it
25 from your point of view?

1 A. No. I think, sir, that there has
2 been perhaps a considerable misunderstanding of what I
3 have tried to indicate in my testimony. I'm not
4 advocating all one or all the other. That's not my
5 position at all. I'm merely suggesting that common
6 sense dictates that if there are resources in a region
7 that can be developed to serve loads within the region,
8 then it should be done that way. But that statement
9 does not preclude the need for transmission
10 interconnection with other systems.

11 Q. No, I wasn't drawing that inference
12 because I did note in the sentence that I began to
13 quote that you do make reference to a transmission
14 line. So, I assume that you were making that
15 provision.

16 But if it was reasonable to develop
17 cogeneration, small hydro, up to the point where it
18 would meet the peak load, you would argue the case for
19 doing so?

20 A. I would argue the case for doing so
21 but not necessarily to the sole exclusion of
22 transmission interconnection.

23 Q. No.

24 A. In my mind there is a balance that
25 has to be effected between the development of local

1 generation and the provision of transmission lines.

2 Q. Are you envisaging a situation in
3 which if there were failures in the local sources that
4 the available transmission could completely supply all
5 areas in the region or not?

6 A. No, not necessarily. I'm not
7 advocating either that all of the generation in a
8 region necessarily be backed up by transmission lines,
9 the accumulative capacity of which equals the local
10 generation of the local load.

11 Q. So if there were unexpected loss of a
12 small plant and if that were of extended duration, you
13 would expect communities that were affected to just
14 live with that short fall for an extended period? Is
15 that the case?

16 A. No, I'm not -- we seem to have the
17 view that there is a tremendous fragmentation in my
18 mind and that is not at all the case. If there was a
19 loss of generation, then I assume that the network, the
20 regional network, if I may use that term, would be
21 adequate to continue to serve the community in
22 question.

23 Q. Okay. I think all that I'm failing
24 to grasp then is what is the difference in terms of
25 transmission if you are allowing for full redundancy.

1 In what way is there less environmental impact under
2 the kind of planning that you're advocating?

3 A. I think the point being that if --
4 let's take two extreme situations. If you contemplate
5 a development plan that does not include local regional
6 generation, then it strikes me that the number and
7 capacity of the transmission line servicing the area of
8 necessity must be increased in some way. You would
9 somehow have to provide a mechanism whereby power from
10 the outside can be directed to the region to satisfy
11 the load. That could be one extreme.

12 On the other extreme, you could envisage
13 a situation whereby rather than building transmission
14 lines into the region, you develop local regional
15 generation to the exclusion of any transmission lines.
16 Such a system could presumably work. It would be a
17 very self-sufficient kind of system in that it would
18 not necessarily be reliant upon any of the neighbouring
19 systems for support.

20 My position is that if you follow the
21 latter route, if you strive to maximize the development
22 of local generation it should be possible to minimize
23 the amount of transmission that would otherwise have to
24 be built either in terms of voltage level enhanced
25 capacity or in terms of number of lines.

1 Q. Would you suggest then that with
2 respect to environmental impact a single say 115 kV
3 line is much preferable to a 230 kV line?

4 A. It's a very difficult question, sir.
5 Are they following the same route?

6 Q. Yes.

7 A. I would assume so. You know, one
8 would expect that the right-of-way width would not be
9 quite as great, for whatever that may be worth. But
10 once you --

11 Q. Is it worth something?

12 A. Probably not a great deal in the
13 final analysis, no, probably not a great deal.

14 But when you move up to 500 kV, you are
15 perhaps talking a different order of magnitude in terms
16 of right-of-way width and under those circumstances it
17 may very well be worth something.

18 DR. CONNELL: Thank you.

19 THE CHAIRMAN: Anyone else have a
20 question before Mr. Greenspoon? (No response.)

21 MR. GREENSPOON: Thank you, Mr. Chairman.

22 RE-DIRECT EXAMINATION BY MR. GREENSPOON:

23 Q. I think basically the answer that
24 flowed from your discussion with Dr. Connell covers the
25 matter that I was going to raise.

1 But just to be more specific, Mr.
2 Campbell indicated that there was a north/south flow.
3 There is a large corridor from Timmins to Toronto, 500
4 kV corridor, you are aware of that?

5 A. Yes, I am. It shows on the --

6 Q. On the map.

7 A. On the map.

8 Q. And that's the corridor that he is
9 talking about, the north/south flow.

10 I just wanted to ask you this to be
11 clear: That north/south flow, what would the impact of
12 that be on the thesis of your paper; that is, local
13 indigenous small supply? Does it have any impact or
14 does it not?

15 A. I'm not sure I fully understand the
16 question. The facility exists. The transmission line
17 exists between the north and the south --

18 Q. Yes. And Mr. Campbell asked you
19 whether you knew that there was a north/south flow on a
20 daily basis. The question I'm asking you is: Does
21 that matter to your hypothesis that we should encourage
22 small scale cogeneration or how will it --

23 A. I don't feel that it impinges on the
24 hypothesis negatively, no.

25 Q. So there isn't a conflict then -- or

1 is there a conflict between integrated planning, as Mr.
2 Campbell described it, and as you testified before, and
3 the small scale planning that you are talking about?

4 A. I view it as a matter of degree. As
5 I tried to explain in my answers to Dr. Connell, it's
6 neither all one way or all the other. I have not seen
7 a great deal of study work -- and it may exist; I just
8 haven't seen it.

9 In the limited documentation that I have
10 had, which is essentially the Supply/Demand plan, it
11 does not show a tremendous amount of consideration
12 being given to the development of regional generation
13 of cogeneration nature as an example. I see a lot of
14 stuff pertaining to building transmission lines into
15 the area, but I'm not advocating all transmission nor
16 all local generation. I think it has to be blend of
17 each but not to the exclusion of either.

18 MR. GREENSPOON: Thank you, Mr. Clayton.
19 Those are my questions.

20 THE CHAIRMAN: That completes the
21 testimony and cross-examination for today. We will
22 start again tomorrow morning at nine o'clock with the
23 MEA's two witnesses.

24 I take it, Mr. Watson, you plan to just
25 put their exhibits in and do you intend to ask any

1 further questions or do you intend to just put them in
2 and then start the cross-examination?

3 MR. R. WATSON: Sir, I'm going to review
4 their evidence very briefly with them. I certainly
5 won't be going --

6 THE CHAIRMAN: It is in a very desirable
7 form of question and answer and makes it very easy for
8 the panel at least to follow it and get the gist of it.

9 MR. R. WATSON: Yes, sir. It was done
10 that way on purpose. I will simply be reviewing that,
11 the highlights of their testimony, and then the
12 witnesses will be available for cross-examination.

13 I expect to be very brief in direct.

14 THE CHAIRMAN: Thank you.

15 We will adjourn until tomorrow morning at
16 nine o'clock.

17 THE REGISTRAR: Please come to order.
18 This hearing is adjourned until nine o'clock tomorrow
19 morning.

20 ---Whereupon the hearing was adjourned at 10:55 a.m.,
21 to be reconvened on Thursday, October 29, 1992, at
22 9:00 a.m.



